AMENDMENTS TO THE CLAIMS

A complete listing of all claims in the application is provided below with the requested amendments marked.

1. (currently amended) A method for monitoring the state of a vehicle chassis, the method comprising:

measuring physical variables on the chassis by means of sensors;

providing a model of the vehicle chassis which continuously identifies parameters of the vehicle chassis and uses such parameters to continuously compile modeled~~modelled~~ variables in a simulatory prognosis of the vehicle chassis behavior~~behaviour~~;

comparing the measured variables with the modeled~~modelled~~ variables by means of a processing unit, wherein the modeled~~modelled~~ variables are determined from specific variables;

performing a classification into classes of causes on the basis of the comparison; and

evaluating a result of the classification.

2. (previously presented) The method according to claim 1, wherein speeds, accelerations or forces are measured as physical variables.

3. (previously presented) The method according to claim 1, further comprising:

determining or updating a remaining lifetime of vehicle components before a critical state is reached or before a maintenance measure is needed, using at least one damage evolution or ageing model of the vehicle components.

4. (previously presented) The method according to claim 1, wherein the comparison of the measured variables and the modelled variables is made by means of a correlation.

5. (previously presented) The method according to claim 1, wherein the classification is performed by means of the processing unit .

6. (previously presented) The method according to claim 1, wherein the classification is made as to whether a cause inside the vehicle or an external cause is involved.

7. (previously presented) The method according to claim 1, wherein the classification is made as to the location of the cause involved inside the vehicle.

8. (previously presented) The method according to claim 1, wherein the modelled variables are calculated.

9. (currently amended) A device for monitoring the state of a vehicle chassis, comprising:

one or more sensors for measuring physical variables on the chassis;

a processing unit

for calculating modelled variables, by continuously identifying vehicle chassis parameters and continuously compiling a simulatory prognosis of the chassis behaviorbehaviour using a model of the chassis;

for comparing the measured variables with the modeledmodelled variables; and

for classifying as a result of the comparison; and

means for evaluating the classified results.

10. (previously presented) The device according to claim 9, wherein the processing unit comprises:

at least one damage evolution or ageing model of chassis components which is used to determine or update a remaining lifetime before a critical state is reached or before a maintenance measure is required.

11. (previously presented) The device according to claim 9, wherein an interface to a superordinate control system of the vehicle is connected to the processing unit, via which data on an actual driving state is delivered to the processing unit or messages therefrom may be saved and may be transmitted to a driver or traction unit conductor or an external control centre.

12. (previously presented) The device according to claim 9, wherein at least one sensor is a vibration sensor, an acceleration sensor, an impact sensor, an acoustic sensor, a

sound sensor, an eddy current sensor, a magnetic field sensor, a temperature sensor, a force sensor, a strain sensor, a distance sensor, a radar Doppler sensor or an ultrasound sensor.

13. (previously presented) The device according to claim 12, wherein the at least one sensor is arranged on a component selected from the group consisting of:

a wheelset, a wheel, a wheelset axle, a wheelset bearing, a bogie, a chassis frame, a primary spring suspension, a spring, a shock absorber, a wheelset guide, a secondary spring suspension, a stabiliser, a stop buffer, a traction linkage, a drive, a drive motor, a gear, a clutch, a drive suspension, a brake, a brake disk, a brake cylinder, a brake lining, a brake pad, a brake linkage and a brake caliper.

14. (previously presented) The device according to claim 9, wherein the means for evaluation comprise a signalling device inside the vehicle or a signalling device in a mobile or stationary control centre outside the vehicle including a data transmission device from the vehicle to the control centre.